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DP6800
DP6810

HITACHI

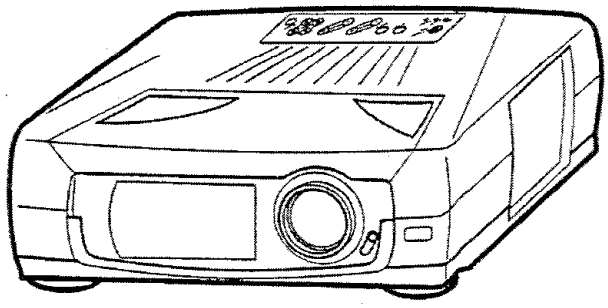
Liquid Crystal Projector

Model name

CP-X950W/E

OPERATING GUIDE

Thank you very much for purchasing this Hitachi Liquid Crystal Projector.
Please read this operating guide to use correctly. After reading this manual, keep it carefully for future reference.



Outline

This Liquid Crystal Projector can display various computer signals and NTSC/PAL/SECAM video signals.

Features

(1) High brightness
A highly efficient optical system with a metal halide lamp ensures high brightness.

(2) High resolution
Three separate high-definition liquid crystal panels are used for the R, G and B signals.

(3) Compact size, light weight for portability

(4) RGB output terminal

(5) RS232C Communication

(6) Mouse emulation

(7) Power zoom and power focus functions

(8) Complies with VESA DDC1/2B specifications

Contents

	Page
Before use	3
Names and functions of each part	8
Installation	11
Basic operations	12
Adjustments and functions	14
Connection to the video signal terminals	19
Connection to the RGB signal terminals	19
Connection to the control signal terminal	22
Example of system setup	27
Cleaning the air filter	27
Lamp	28
Message table	28
When you think something wrong	29
Specifications	30

⚠FOR THE CUSTOMERS IN U.K

THIS PRODUCT IS SUPPLIED WITH A TWO PIN MAINS PLUG FOR USE IN MAINLAND EUROPE. FOR THE U.K PLEASE REFER TO THE NOTES ON THIS PAGE.

IMPORTANT FOR UNITED KINGDOM

WORDING FOR CLASS I EQUIPMENT INSTRUCTION BOOKS AND LABELS

The mains lead on this equipment is supplied with a moulded plug incorporating a fuse, the value of which is indicated on the pin face of the plug. Shoud the fuse need to be replaced, an ASTA or BSI approved BS 1362 fuse must be used of the same rating. If the fuse cover is detachable never use the plug with the cover omitted. If a replacement fuse cover is required, ensure it is of the same colour as that visible on the pin face of the plug. Fuse covers are available from your dealer.

DO NOT cut off the mains plug from this equipment. If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or consult your dealer.

Shoud it be necessary to change the mains plugs, this must be carried out by a competent person, preferable a qualified electrician.

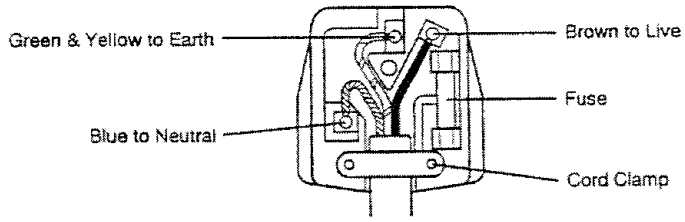
If there is no alternative to cutting off the mains plug, ensure that you dispose of it immediately, having first removed the fuse, to avoid a possible shock hazard by inadvertent connection to the mains supply.

WARNING: THIS EQUIPMENT MUST BE EARTHED

IMPORTANT:

The wires in the mains lead are coloured in accordance with the following code:

Green and Yellow = Earth, Blue = Neutral, Brown = Live.



As these colours may not correspond with the coloured makings identifying the terminals in your plug, proceed as follows:

The wire which is coloured Green and Yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol ⏚ or coloured Green or Green and Yellow.

The wire coloured Blue must be connected to the terminal marked with the letter N or coloured BLUE or BLACK. The wire coloured BROWN must be connected to the terminal marked with the letter L or coloured BROWN or RED.

1152x864 @ 75 Hz.	67.5 KHz	75 Hz	OK	
1152x864 @ 80 Hz.	76.3 KHz	80 Hz	Black V-Sync Bar at Bottom of Screen	Positioning had No Effect.
1152x864 @ 85 Hz.	77 KHz	85 Hz	Sync Out of Range Message	Logo Screen with "Sync Out of Range Message".
1280x1024 @ 43 Hz (Int)	50 Khz	43 Hz	Black V-Sync Bar at Bottom of Screen	Positioning had No Effect.
1280x1024 @ 47 Hz (Int)			Sync Out of Range Message	Logo Screen with "Sync Out of Range Message".
1280x1024 @ 60 Hz	63.9 KHz	60 Hz	Slight Flickering on Image	Adjustments Had No Effect.
1280x1024 @ 70 Hz.	74.6 KHz	70 Hz	OK	
1280x1024 @ 74 Hz.	78.8 KHz	74 Hz	OK	Horizontal Size Needed Adjusting.
1280x1024 @ 75 Hz.	79.9 KHz	75 Hz	OK	Horizontal Size Needed Adjusting.
VHS Tape Playback	NTSC			Normal color or NTSC or Auto Modes
	PAL			Normal color on PAL or Auto Modes
Laserdisc Player				Image and Color Good.
DVD Player				Image and Color Good.
Toshiba 530 CRT				
640x480 - external	31.4KHz.	59.9 Hz	OK	
Simultaneous	48.4 KHz.	60 Hz.	OK	
800x600 - external	37.9 KHz.	60.4 Hz.	OK	
Simultaneous	48.4 KHz.	60 Hz.	OK	
1024x768 - external	48.4 KHz.	60 Hz.	OK	
Simultaneous	48.4 KHz.	60 Hz.	OK	

Product: Engineering Sample DP6810
Author: Fred Vian
Test Computer: Desktop - Pentium 133
Graphics Card: ATI Mach64
Serial Number: 3

First Impressions:
Menu Very Similar to the DP5500/5800
Menu Control for Color Balance in RGB and Video Modes.
Defaults to Expanded Mode for 1024X768 Compressed - 1024x768
The Accessories were not Available During Testing - Used a DP5800 Remote and Std. VGA Cable.

Resolution	H-Sync	V-Sync	Image Quality	Comments
640x480 @ 60 Hz.	31.4 KHz	60 Hz	OK	
640x480 @ 72 Hz.	37.5 KHz	72 Hz	OK	
640x480 @ 75 Hz.	37.5 KHz	75 Hz	OK	
640x480 @ 85 Hz.	43.2 KHz	85 Hz	OK - Image looks like it is 800x600 Display Size	Does not fill Entire Screen Area - Only 800x600
640x480 @ 90 Hz.	47.9 KHz	90 Hz	Image Very Jittery - 800x600 Display Size	Adjustments Had No Effect.
640x480 @ 100 Hz.	52.9 KHz	100 Hz	Sync Out of Range Message	Logo Screen with "Sync Out of Range Message".
800x600 @ 48 Hz (Int)	33.8 Hz	48 Hz	Sync Out of Range Message	Logo Screen with "Sync Out of Range Message".
800x600 @ 56 Hz.	35.1 KHz	56 Hz	OK	
800x600 @ 60 Hz.	37.8 KHz	60 Hz	OK	
800x600 @ 70 Hz.	44.5KHz	70 Hz	OK	
800x600 @ 72 Hz.	48 KHz	72 Hz	OK	
800x600 @ 75 Hz.	46.8 KHz	75 Hz	OK	
800x600@ 85 Hz.	53.6 KHz	85 Hz	Image is in True size.	Does not fill the Entire Screen Area - Only 800x600
800x600 @ 90 Hz.	56.6 KHz	90 Hz	Image is in True size.	Does not fill the Entire Screen Area - Only 800x600
800x600 @ 100 Hz.	63.9 Khz	100 Hz	Sync Out of Range Message	Logo Screen with "Sync Out of Range Message".
1024x768 @ 43 Hz (Int)	35.5 KHz	43 Hz	OK - Image looks like it is 800x600 Display Size	Does not fill Entire Screen Area - Only 800x600
1024x768 @ 60 Hz.	43.8 KHz	60 Hz	OK	
1024x768 @ 70 Hz	56.4 KHz	70 Hz	OK	
1024x768 @ 72 Hz.	58.2 KHz	72 Hz	OK	
1024x768 @ 75 Hz.	60 KHz	75 Hz	OK	
1024x768 @ 85 Hz.	68.6 Khz	85 Hz	Sync Out of Range Message	Logo Screen with "Sync Out of Range Message".
1024x768 @ 90 Hz.	72.6 KHz	90 Hz	Sync Out of Range Message	Logo Screen with "Sync Out of Range Message".
1024x768 @ 100 Hz.	80.4 KHz	100 Hz	Sync Out of Range Message	Logo Screen with "Sync Out of Range Message".
1152x864 @ 43 Hz. (Int)	45.9 KHz	43 Hz	Image Compressed Vertically	
1152x864 @ 47 Hz. (Int)	44.8 KHz	47 Hz	Sync Out of Range Message	Logo Screen with "Sync Out of Range Message".
1152x864 @ 60 Hz.	54.9 KHz	60 Hz	Black V-Sync Bar at bottom of Screen	Positioning had No Effect.
1152x864 @ 70 Hz.	66.1 KHz	70 Hz	Image Ok, but Does Not Fit in Display Area	Ran H-Size to Smallest Value - Still Doesn't Fit.

Patrick Bates

From: Patrick Bates
Sent: Friday, July 16, 1999 2:08 PM
To: Keith Dunlea
Cc: Doug Meadows; Rich Gaboury; Fred Vian; Patrick Bates; Steven Mehler
Subject: 6800/6810 Cable List 4 Web Posting

All of these part numbers ship in the accessory tray.

- RCON-005 Remote Control
- 900-95174 VGA computer cable
- 900-95175 PC Serial mouse cable
- 900-95177 Mini Audio Stereo Cable
- 900-95178 PC PS/2 mouse cable
- 900-95179 Mac ADB mouse cable
- C149-0 VGA/Mac adapter
- 900-95181 S-Video Mini Din cable
- 900-58001 VCR A/V RCA x 3 cable
- 901-00117 Power Cable US

DP6800 Distance Image size Chart

TR Min 2.24
TR Max 1.49

	Dist	Diag/Min	Diag/Max	Width/Min	Width/Max	Height/Min	Height/Max
	4	1.79	2.68	1.43	2.15	1.07	1.61
	5	2.23	3.36	1.79	2.68	1.34	2.01
	6	2.68	4.03	2.14	3.22	1.61	2.42
	7	3.13	4.70	2.50	3.76	1.88	2.82
	8	3.57	5.37	2.86	4.30	2.14	3.22
	9	4.02	6.04	3.21	4.83	2.41	3.62
	10	4.46	6.71	3.57	5.37	2.68	4.03
	11	4.91	7.38	3.93	5.91	2.95	4.43
	12	5.36	8.05	4.29	6.44	3.21	4.83
	13	5.80	8.72	4.64	6.98	3.48	5.23
	14	6.25	9.40	5.00	7.52	3.75	5.64
	15	6.70	10.07	5.36	8.05	4.02	6.04
	16	7.14	10.74	5.71	8.59	4.29	6.44
	17	7.59	11.41	6.07	9.13	4.55	6.85
	18	8.04	12.08	6.43	9.66	4.82	7.25
	19	8.48	12.75	6.79	10.20	5.09	7.65
	21	9.38	14.09	7.50	11.28	5.63	8.46
	22	9.82	14.77	7.86	11.81	5.89	8.86
	23	10.27	15.44	8.21	12.35	6.16	9.26
	24	10.71	16.11	8.57	12.89	6.43	9.66
	25	11.16	16.78	8.93	13.42	6.70	10.07
	30	13.39	20.13	10.71	16.11	8.04	12.08
Max Focus	**35**	**15.63**	**23.49**	**12.50**	**18.79**	**9.38**	**14.09**
	40	17.86	26.85	14.29	21.48	10.71	16.11
	45	20.09	30.20	16.07	24.16	12.05	18.12
	50	22.32	33.56	17.86	26.85	13.39	20.13
	55	24.55	36.91	19.64	29.53	14.73	22.15
	60	26.79	40.27	21.43	32.21	16.07	24.16
	65	29.02	43.62	23.21	34.90	17.41	26.17
	70	31.25	46.98	25.00	37.58	18.75	28.19
	75	33.48	50.34	26.79	40.27	20.09	30.20
	80	35.71	53.69	28.57	42.95	21.43	32.21
	85	37.95	57.05	30.36	45.64	22.77	34.23
	90	40.18	60.40	32.14	48.32	24.11	36.24
	100	44.64	67.11	35.71	53.69	26.79	40.27

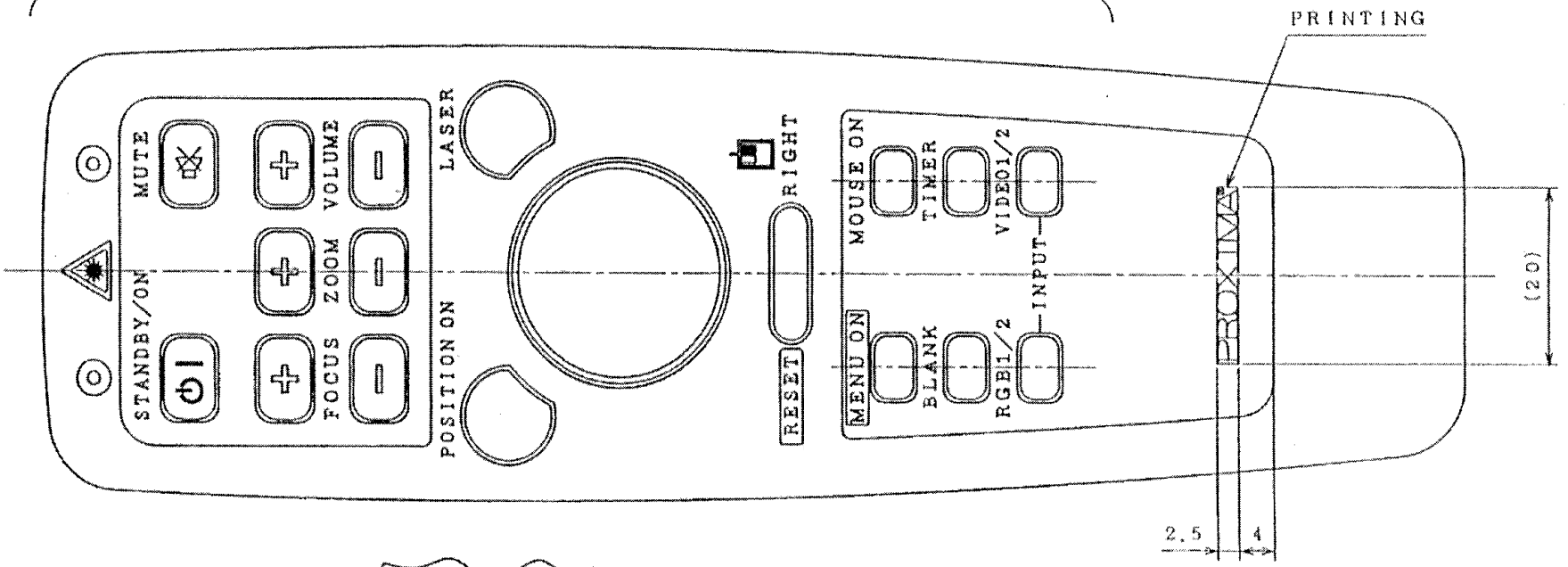
All entries are referrenced in Feet

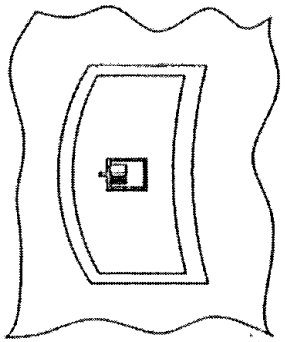
APPEARANCE DESIGN OF DP6810

R/C HANDSET

STN.	REVISIONS	DATE	REVD.	CHKD.	APPD.
1					
2					
3					
4					
5					

HITACHI SAME





REAR VIEW

APPROVED BY

Chen 12/17

12/28

12/28

REGD.				TITLE		YOKOHAMA WORKS DWG. No.	REV.
	DWN.	K. Kimura	15 DEC '98	LCD PROJECTOR DESIGN SPEC.	Hitachi, Ltd. Tokyo Japan	327 R020639	SH. 04
	CHKD.	H. Nisono	15 DEC '98				
	APPD.		15 DEC '98				

0 100

WARNING: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Instructions to Users:

This equipment complies with the requirements of FCC (Federal Communication Commission) Class A equipments provided that following conditions are met.

(1) Video signal cables:

Double shielded coaxial cables (so called FCC shield cable) must be used and the outer shield must be connected to the ground. Or, if normal coaxial cables are used, the cables must be enclosed in metal pipes or similar way to reduce the interference noise radiation.

(2) Power cord:

Shielded power cord must be used. The outer shield must be connected to the ground.

(3) Video inputs:

The input signal amplitude must no exceed the specified level.

Before use

<Before Use>

Illustrated marks — Various illustrated marks are used in this product and instruction manual so the product is used correctly and safely, and also to protect you and others from danger and your property from being damaged.

⚠Warning This shows that a person could be killed or injured if the wrong operation is done by ignoring this indication.

⚠Caution This shows that a person could be injured or material may be damaged if the wrong operation is done by ignoring this indication.

Examples of illustrated marks

The △ mark informs you that there is a warning (including caution). The concrete details of the warning (the left diagram shows the caution for an electric shock hazard) is shown in the diagram.

The ⊘ mark informs you of a prohibited action. The concrete prohibited action (the left diagram shows the prohibition of disassembly) is drawn in the diagram or near it.

The ● mark informs you of actions you must do. The concrete instruction details (the left diagram shows "Disconnect the power plug from the power outlet") is drawn in the diagram.

[Safety precaution]

⚠Warning

■ If any abnormality occurs.

- When there is an abnormal smell or smoke, if you use this unit as it is, this could cause a fire or electric shock, etc. When an abnormality is found, immediately turn off the power switch and pull out the power plug from the power outlet. Check that there is no smoke, etc., then contact your dealer to repair the unit. Do not repair it yourself as it is very dangerous.
- Do not use this unit as it is after trouble has occurred, such as "No picture", "No sound", "Abnormal sound", etc. This may cause a fire, electric shock, etc. In this case immediately turn off the power switch and disconnect the power plug, then contact your dealer to repair the unit.

Pull out the power plug from the power outlet.

- If water, etc. enters inside the unit, turn off the power switch of the unit first and disconnect the power plug and then contact your dealer. If you use it as it is, it may cause a fire, electric shock, etc.

■ Do not install this unit in an unstable place.

- Avoid placing it in an unstable place such as weak base, inclined floor, etc. This may cause it to drop or fall over, resulting in injury.

■ Do not open the cabinet.

Do not open the cabinet. There are high voltage parts inside the cabinet and this may cause an electric shock. Ask your dealer to check inside and adjust and repair the unit.

Electric shock hazard

Prohibition of disassembly

■ Do not use this in a bathroom, etc.

Do not use this unit in a bathroom, etc. This may cause a fire, electric shock, etc.

Do not use near water

■ Do not look directly at the lens when the lamp is lit.

Do not look directly at the lens when the lamp is lit. Since a strong light is used, it could damage you vision, etc. Especially pay attention if children are present.

■ Do not insert any foreign object.

- Do not insert a metal or flammable object inside through the ventilation holes, etc. This may cause a fire, electric shock, etc.

- If foreign matter enters inside, turn the power switch off and disconnect the power plug from the power outlet and contact your dealer. If you use as it is, it may cause a fire, electric shock, etc. Be careful especially if children could touch the unit.

Pull out t power pl from the power outlet.

■ Do not apply any shock.

If you drop this unit or if the cabinet is broken, turn off the power switch, disconnect the power plug and contact your dealer. If you use it as it is, it may cause a fire, electric shock, etc.

Pull out t power pl from the power outlet.

■ Do not remodel this unit.

Do not remodel this unit. It may cause a fire, electric shock, etc.

Prohibitio of disasser

■ Do not put a container, etc. with liquic on this unit.

Do not put a vase, flowerpot, cosmetic container, medicine or water and small metal objects on this unit. If liquid spills and enter inside the unit, it may cause a fire, electric shock, etc.

■ Do not use power supplies other than that specified.

Do not use this unit with a power voltage other than specified power supply voltage. It may cause a fire, electric shock, etc.

⚠Warning

■ Be careful in handling the power cord.

- Do not scratch, damage or process the power cord. Do not bend it forcibly. Also do not put a heavy object on it, do not heat it and do not pull it. If you do, the power cord may be damaged and it may cause a fire, electric shock, etc.
  - Do not pull the cord.
  - Do not put a heavy object on it.
  - Do not damage the cord.
  - Do not put it near a heating device.

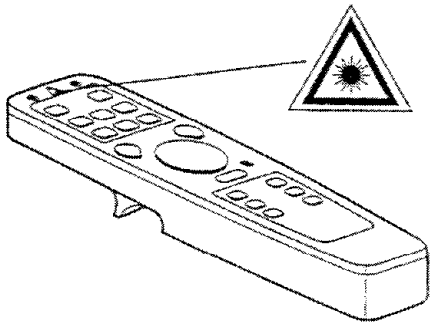
- Be careful that this unit is not placed on the power cord. The power cord may be damaged and it may cause a fire, electric shock, etc. If the cord is covered with a carpet, etc. a heavy object may be put on it without your realizing it.
- If the cord is damaged (core wire is exposed, disconnected, etc.), ask your dealer to replace it. It may cause a fire, electric shock, etc.

- Check that no dirt adheres to the power plug and fully insert without any play. If dirt adheres or the connection is incomplete, it may cause a fire, electric shock, etc.
- The outer shield of power cord must be connected to ground.
  If you do not, it may cause a electric shock.

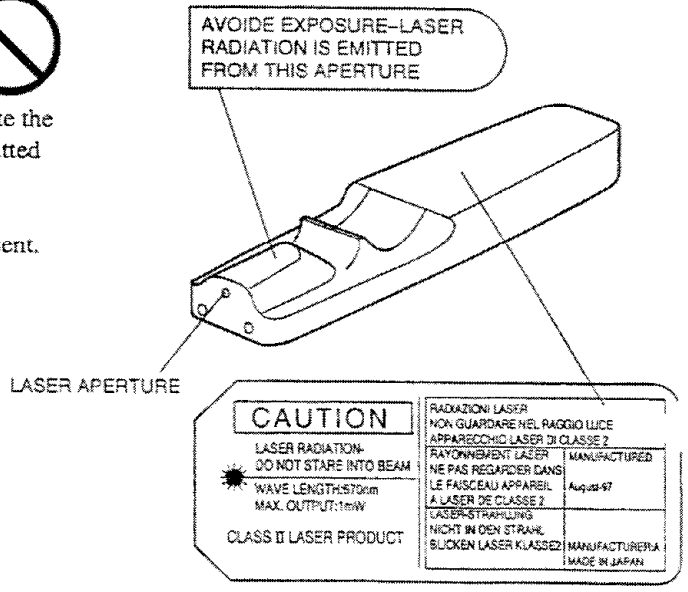
■ Do not stare directly into the laser aperture.

- The laser pointer on the remote control unit radiates the laser beam from the laser aperture.

- Do not stare into the laser aperture or radiate the laser beam to other persons as the laser emitted is a class II laser and it could damage you vision, etc.
  Especially pay attention if children are present.



- The three labels below are caution labels for the laser beam.



⚠Caution

■ Do not step on this unit or do not put a heavy object on it.

- Do not step on this unit. Especially pay attention if children are present. If you do, the unit may fall over or may be broken causing an injury.
- Do not put a heavy object on this unit. If you do, the unit may fall due to its imbalance or it may drop, causing an injury.

■ Do not block the ventilation holes.

Do not block the ventilation holes. If the ventilation holes are blocked, the heat inside may build up and it may cause a fire. Do not use this unit in the following ways: On its side. In a poorly ventilated, narrow place. On a carpet or bedspread. Covered with a tablecloth. Place this unit so that the ventilation holes are kept 10cm or more away from the wall.

■ Cleaning

Pull out the power plug from the power outlet.

Be sure to pull out the power plug from the power outlet for safety when cleaning.

■ Use of batteries.

- Do not use batteries not specified for this unit. Do not use new batteries mixed together with old ones. This may cause a fire, injury due to burst of battery, liquid leakage.
- When inserting batteries in this unit, pay attention to the direction of the ⊕ and ⊖ polarity indications and insert the batteries correctly. If the polarities are confused, it may cause injury or damage near the unit due to burst batteries, liquid leakage, etc.

■ When you are not going to use for a long time.

Pull out the power plug from the power outlet.

When you are not going use this unit for a long time because you are going on a trip, etc., be sure to pull out the power plug from the power outlet for safety. And also apply cover to the lens so that the lens is not damaged.

■ Do not place this unit in a moist or dusty place.

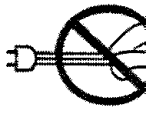
- Do not place this unit in a moist or dusty place. It may cause a fire, electric shock, etc.
- Do not place this unit where it would be exposed to soot or steam, near a cooking stove or humidifier, etc. It may cause a fire, electric shock, etc.

■ Set the caster stoppers.

When this unit is installed on the table with casters, set the caster stoppers. If the table moves, it may fall over, causing an injury.

■ Handle the power cord carefully.

- Do not bring the power cord near a heating device. The shield of the cord may melt and it may cause a fire, electric shock, etc.
- Do not insert/disconnect the power plug with wet hands. It may cause an electric shock.



- When the power plug is to be disconnected, do not pull the power cord. The power cord may be damaged and it may cause a fire, electric shock, etc. Be sure to hold the power plug.

■ Clean inside the unit at least once two years.

Ask your dealer to clean inside the unit at least once two years. If the unit is left with too much dust inside as it is for a long this without cleaning it may cause a fire. Especially it is effective to clean before the rainy season starts. Consult your dealer for the cost of the cleaning the inside the unit.

■ Caution when carrying it.

When this unit is to be moved, apply a cover to the lens and be sure to disconnect the power plug from the power outlet and check that all external connection cords are removed before moving it. If not, the cord may be damaged and it may cause a fire,

Pull out th power plu from the

⚠Caution

[General cautions]

■ Do not place this unit where it gets hot.

Be careful since if you place the unit outdoors, in a place exposed to direct sunlight or near a heating device, the cabinet and parts could be affected.

■ Volume.

Use at the proper volume level so that it does not bother persons in the neighborhood. Especially, since the sound is likely to carry well at the night even at a low volume, consider the neighborhood to a good living environment.

■ Cleaning the lens.

To clean the lens, use a generally-available lens cleaning tissue (used for cleaning lens of camera, glasses, etc.). Be careful not to scratch the lens with a hard object.

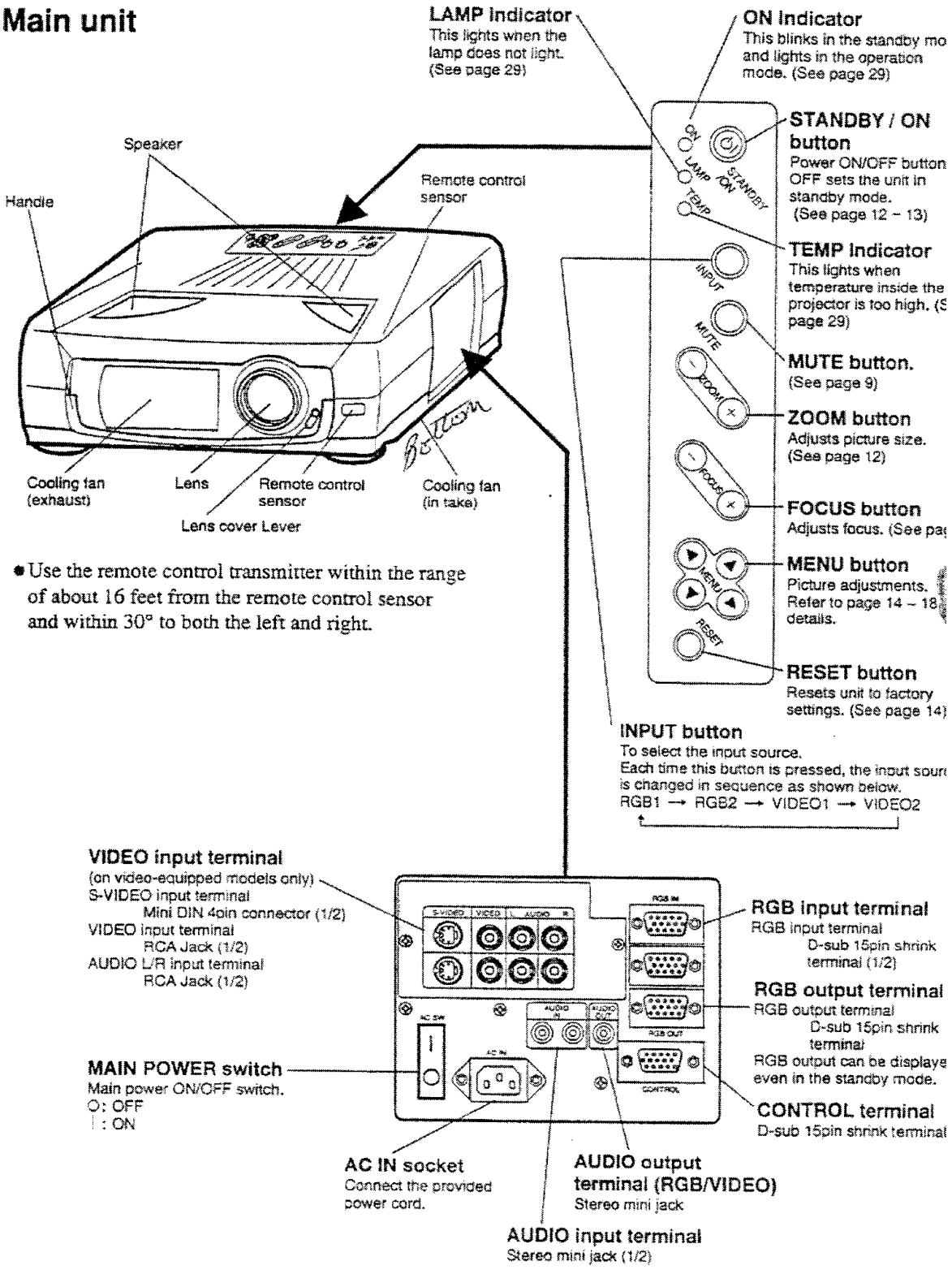
■ Cleaning the cabinet.

- Since many plastic materials are used on the surface of the cabinet, if the surface is cleaned using benzene, thinner, etc., it may change in quality or the coating may be peeled off. Avoid using chemicals.
- When a chemically-teated cloth is used, follow the cautions that come with the cloth.
- Do not spray a volatile agent such as insecticide on the unit. Do not leave a rubber or vinyl object touching the cabinet for a long time. It may cause the cabinet to change in quality or the coating to peel off.
- Clean the dirt from the cabinet and operation panel by dusting lightly with soft cloth. If the dirt is conspicuous, wipe off with a cloth moistened with detergent diluted with water, then wipe off with a dry soft cloth.

■ Rest your eyes occasionally when viewing for a long time.

Names and functions of each part

Main unit


LAMP Indicator
This lights when the lamp does not light. (See page 29)
ON Indicator
This blinks in the standby mo and lights in the operation mode. (See page 29)
STANDBY / ON button
Power ON/OFF button OFF sets the unit in standby mode. (See page 12 – 13)
TEMP Indicator
This lights when temperature inside the projector is too high. (S page 29)
MUTE button.
(See page 9)
ZOOM button
Adjusts picture size. (See page 12)
FOCUS button
Adjusts focus. (See pa
MENU button
Picture adjustments. Refer to page 14 – 18 details.
RESET button
Resets unit to factory settings. (See page 14)
INPUT button
To select the input source.
Each time this button is pressed, the input sour is changed in sequence as shown below.
RGB1 → RGB2 → VIDEO1 → VIDEO2
Speaker
Handle
Remote control sensor
Cooling fan (exhaust)
Lens
Remote control sensor
Cooling fan (in take)
Lens cover Lever
VIDEO input terminal
(on video-equipped models only)
S-VIDEO input terminal
Mini DIN 4pin connector (1/2)
VIDEO input terminal
RCA Jack (1/2)
AUDIO L/R input terminal
RCA Jack (1/2)
RGB input terminal
RGB input terminal
D-sub 15pin shrink terminal (1/2)
RGB output terminal
RGB output terminal
D-sub 15pin shrink terminal
RGB output can be displaye even in the standby mode.
CONTROL terminal
D-sub 15pin shrink terminal
MAIN POWER switch
Main power ON/OFF switch.
O: OFF
| : ON
AC IN socket
Connect the provided power cord.
AUDIO output terminal (RGB/VIDEO)
Stereo mini jack
AUDIO input terminal
Stereo mini jack (1/2)

- Use the remote control transmitter within the range of about 16 feet from the remote control sensor and within 30° to both the left and right.

Names and functions of each part (continued)

Remote control transmitter

STANDBY / ON button
Power ON/OFF button.
OFF sets the unit in standby mode.
(See page 12, 13)

FOCUS button
Adjusts focus. (See page 12)

ZOOM button
Adjusts picture size.(See page 12)

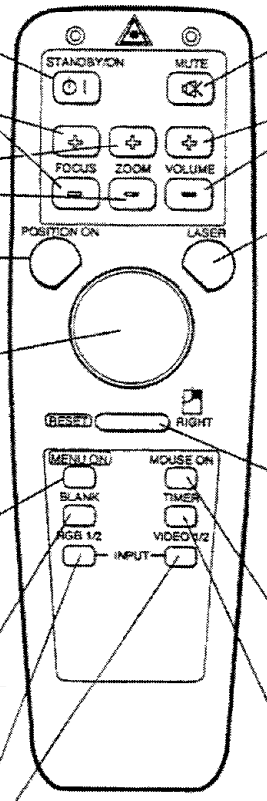
POSITION ON button
Moves the picture by DISC PAD after pressed the POSITION ON button.
(Only RGB signal input)
While the back light on, you can operate POSITION. *1

DISK PAD
① When the back light of MENU ON button on, selects or adjusts the menu items. (See page 14)
② When removes the on-screen menus, works as mouse.
③ When the back light of the POSITION ON button on, moves picture. *2

MENU ON button
Displays the on-screen menus.
And back light on. (See page 14 ~ 18)
While the back light on, you can operate MENU.

BLANK ON button
① The blank screen which is displayed by pressing BLANK.
② And the blank screen will be revealed down by pressing BLANK again. (See page 16 ~ 17)

INPUT SELECT button
Selects the input source. See page 12)

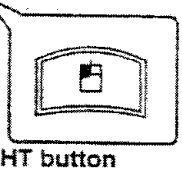


MUTE button
Silences the sound. (Canceis the mute when the unit is set in mute mode.)

VOLUME button
Adjusts volume. The sound is loud or low while pressing the "+" or "–" button.

LASER ON
Laser pointer ON/OFF button.
Use as a stick (for indication).
(See page 10)

MOUSE LEFT button
Mouse left button is the left click of the mouse. (bottom button)
(See page 22)



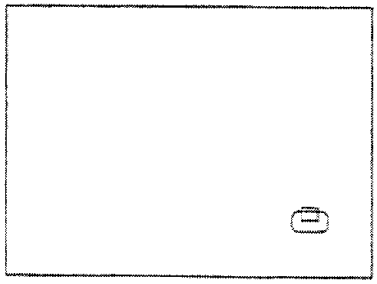
RESET / RIGHT button
When displays the on-screen menus, resets the menu item to factory settings.
When operats the mouse emulation, works as right click of mouse in computer mode.
After moving the picture (POSITION ON), resets the position to factory settings.

MOUSE ON button
Mouse emulation mode starts. (See page 22)
When menu are open or blank screen is displayed or icon of position is displayed, there are stopped and back light off.

TIMER ON / OFF button
Displays the setting time by count down.
See page 18 "TIMER" of menu when you set the minutes of timer.

---

*1 **POSITION ON icon**
When presses POSITION ON button, back light on and icon is displayed.
While displaying the icon, you can operate POSITION.
Icon is displayed in video mode, but can not operate POSITION.



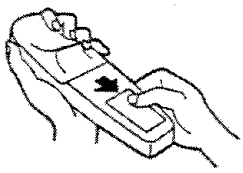
*2
When the back light of MENU ON or POSITION ON button on without displaying the icon of POSITION ON or MENU, can operate DISK PAD too.
Displays the icon or MENU at the same time as starting the operation.
When presses the MOUSE ON button, MENU mode or POSITION ON mode is stopped.

Names and functions of each part (continued)

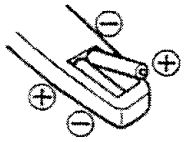
How to insert batteries insert the provided batteries (LR6 (alkali)) into the remote control transmitter.

1 Remove the battery compartment cover.

Slide the battery compartment cover in the direction of the arrow while pressing slightly down on it.



2 Insert the batteries as illustrated inside the battery compartment.



3 Replace the cover.

⚠Caution Cautions on use of batteries

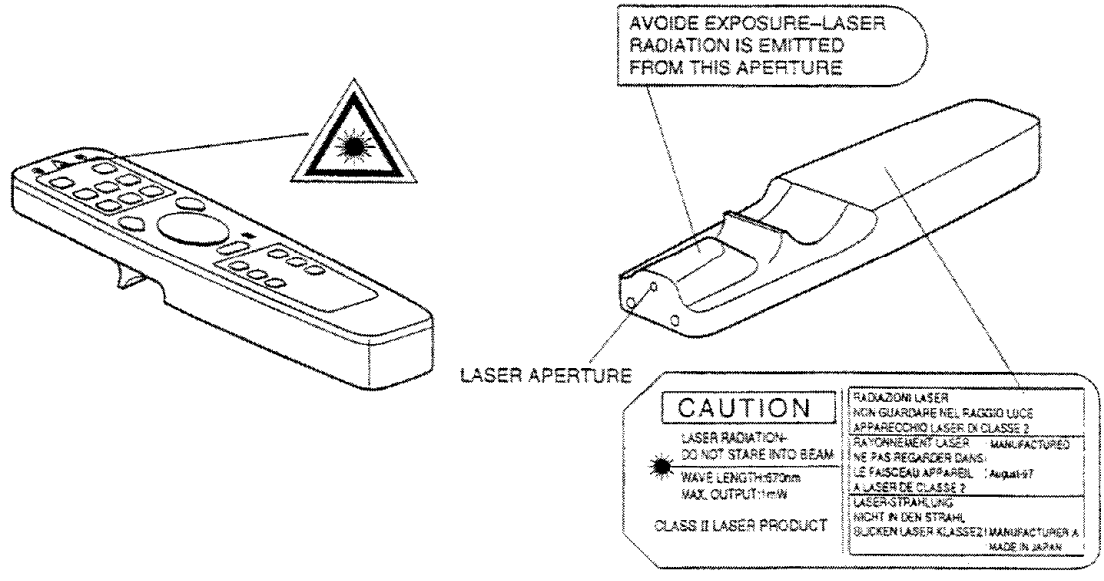
- Do not use batteries not specified for this unit. Also do not use old and new batteries together. It may cause a fire, injury due to burst of battery or liquid leakage.
- When inserting batteries, pay attention to the direction of the ⊕ and ⊖ polarity indications and insert the batteries correctly. If the polarities are confused, it may cause injury or damage near the unit due to a burst of battery or liquid leakage.

Caution Cautions on use

- Do not drop the remote control transmitter or apply any shock to it.
- Do not let the remote control transmitter get wet and do not put it on a wet object. It may cause a malfunction.
- If you are not going to use it for a long time, remove the batteries from the remote control transmitter.
- If operation of the remote control becomes difficult, replace the batteries.

Caution Cautions on use of the laser pointer.

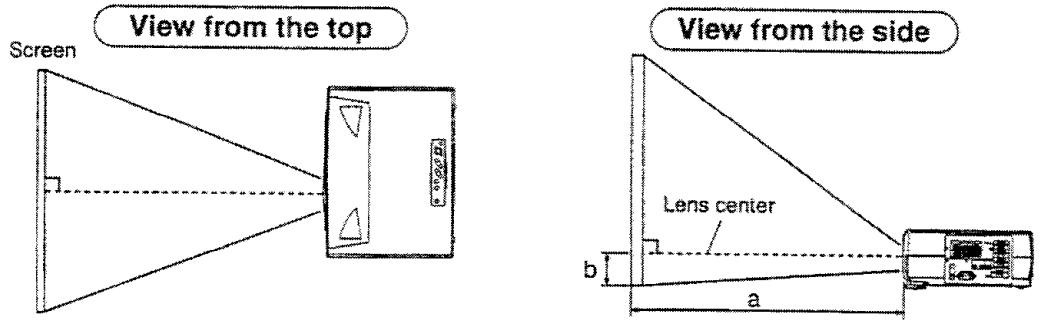
- The laser pointer on the remote control unit radiates the laser beam from the laser aperture.
- This laser pointer used as a stick (for indication).
  Do not stare directly into the laser aperture or radiate the laser beam to other persons as the laser emitted is a class II laser and it could damage you vision, etc.
  Especially pay attention if children are present.
- The three labels below are caution labels for the laser beam.



Installation

Example of the projector and screen installation

Determine picture size and projection distance as illustrated below.



Screen (inch)	a (inch)		b (inch)
	Minimum	Maximum	
40	60	89	3.4
60	89	134	5.1
80	119	179	6.9
100	149	224	8.6
120	179	269	10.3
150	224	336	12.9
200	298	448	17.2

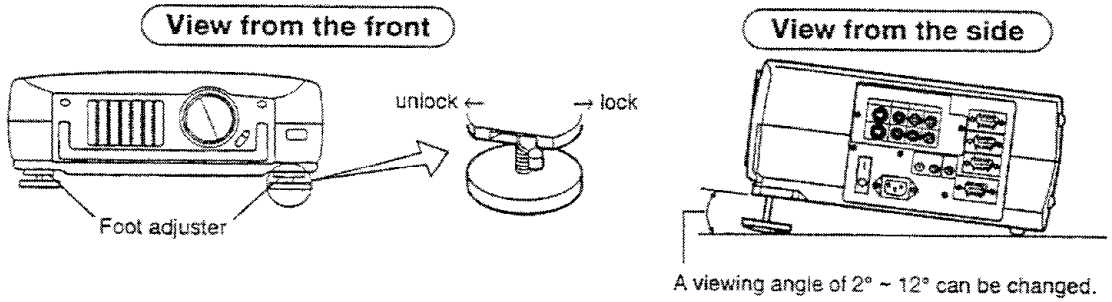
a: Distance from the projector to the screen. (±10%)
b: Length from the center of the lens to the bottom of the picture. (±10%)
This screen size is full-screen size. (1024 dots × 768 dots)

Installation of liquid crystal projector

Please basically use liquid crystal projector at the horizontal position.
If you use liquid crystal projector by the lens up position, the lens down position and the side up position, this may cause the heat inside to build up and become the cause of damage.

How to use foot adjusters

Adjust the projection position using the foot adjusters at the bottom of the projector.

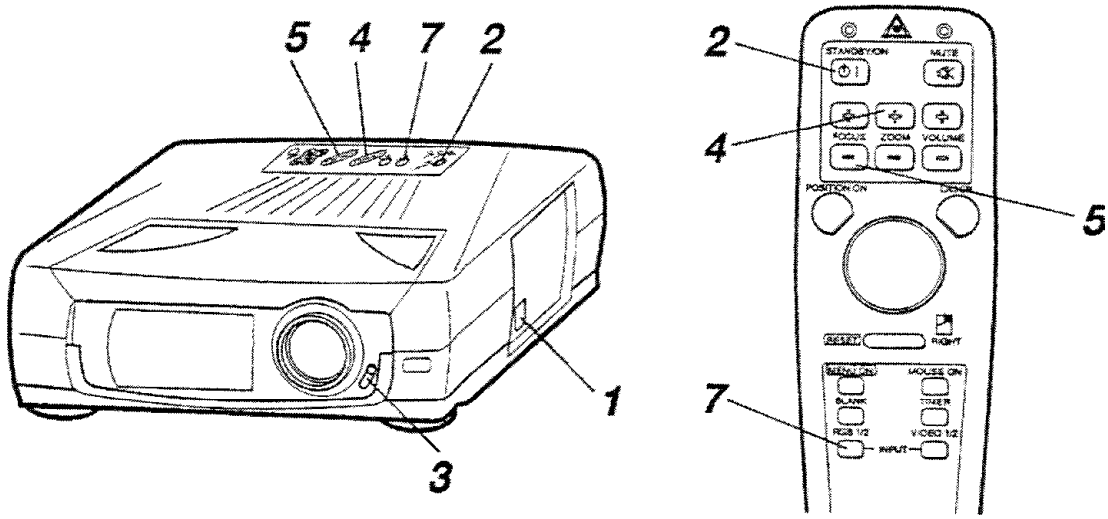


1. Lift up the projector, unlock the foot adjusters.
2. Adjust a viewing angle, and then lock the foot adjusters complete.
3. To adjust the angle slightly, revolve the foot adjusters.

⚠Caution Do not unlock the foot adjusters while you do not support the projector, to avoid falling of the projector and causing an injury.
Do not revolve the foot adjusters by force, the foot adjusters is damaged.
If the foot adjusters do not lock completely, move the foot adjusters a little before locking.

Basic operations

To project the picture



1 Turn the MAIN POWER switch of the projector on. [I : ON]

• The ON indicator will light up orange.

2 Press the STANDBY/ON button.

• The ON indicator blinks (green) and then lights (green).
• The ON indicator will blink green during warm-up and light up.

3 Turn the lens cover lever down.

• Lens cover opens.

4 Adjust the picture size using the ZOOM button.

5 Adjust the focus using the FOCUS button.

(1) Press the FOCUS button. The on-screen display shown on the right appears.
(2) Adjust the focus so that the picture is clear using the FOCUS button.
(3) When any other button is pressed, "FOCUS" on the screen will be turned off.

+++FOCUS+++

6 Power on all connected equipment.

The method of connecting various equipment, see on the page 19 – 27.

7 Press the INPUT button or the INPUT SELECT (VIDEO or RGB) button to select the source of the signal to be projected on the screen.

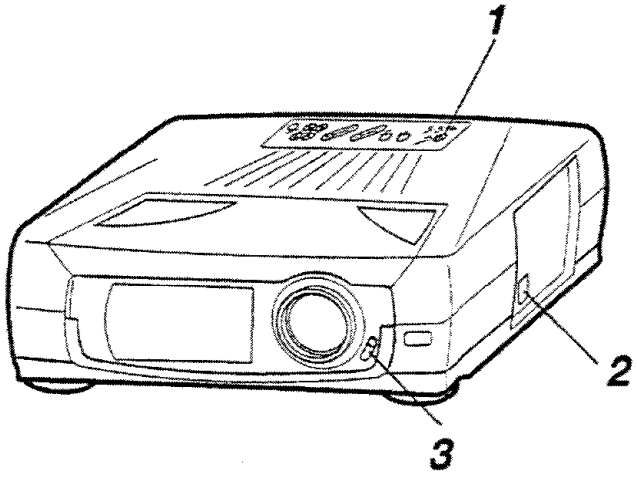
• The selected signal input is displayed at the bottom right of the screen.

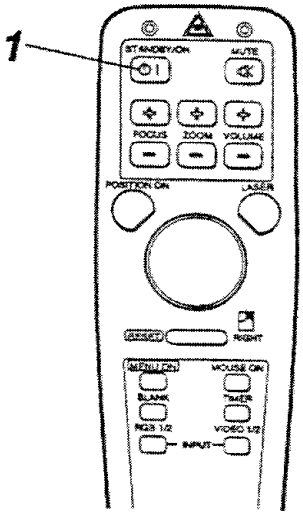
Example on-screen displ

RGB 1

Basic operations (continued)

To turn off the power





1 Press the STANDBY/ON button, for 1 second.

- The ON indicator lights up orange and the lamp turns off. (About 1 minute later), the fan stops and the indicator blinks orange.
- Press the STANDBY/ON button for short time (less than 1 second), the projector do not set in standby mode.

2 Turn the MAIN POWER switch of the projector off. [○ : OFF]

3 Turn the lens cover lever up.

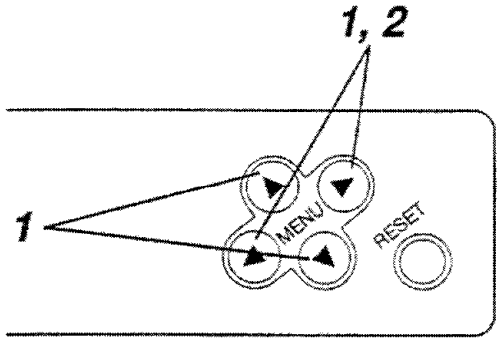
- Lens cover closes.

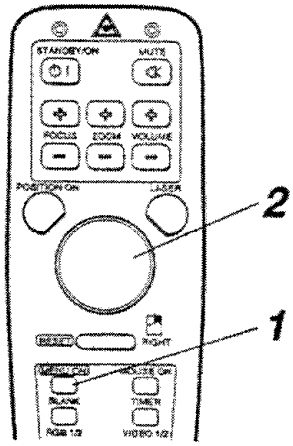
Caution Do not turn off the MAIN POWER switch before pressing the STANDBY/ON button. After the STANDBY/ON button is pressed, the fan rotates for about 1 minute to cool the projector. Do not turn off the MAIN POWER switch during the lamp on because the lamp is damaged.

PLUG & PLAY

This projector complies with VESA DDC1/2B specifications. PLUG & PLAY is a system with computer, peripherals (including projectors), and operating system.
It works when the projector is connected to DDC (Display Data Channel) ready computer that is running an operating system software that incorporates plug & play functionality.
(Only RGB 1)

Adjustments and functions





1 Press the MENU (▲ ▼ ◀ ▶) buttons or the MENU ON / OFF button.

• On-screen menus are displayed on the screen.

2 Select the menu to be adjusted using the MENU (◀ ▶) buttons or DISK PAD.

• Menu displayed in green is selected.

3 Select the item to be adjusted using the MENU (▲ ▼ ◀ ▶) buttons or DISK PAD.

• Item displayed in green can be adjusted.
When the MOUSE ON button is pressed 5 ~ 10 seconds elapses, MENU screen will go off.

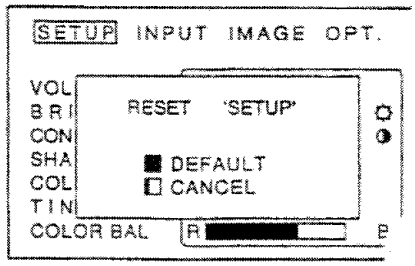
Memory function

Individual memory functions are provided for the VIDEO1, VIDEO2, RGB1 and RGB2 input terminals. Adjustments are saved after power off.

To return to the initial setting

• Select the menu item to return to the initial setting.
• Press the RESET button.
• Select the DEFAULT (To select the CANCEL is not changed).

• Select the adjustment item to return to the initial setting.
• Press the RESET button.

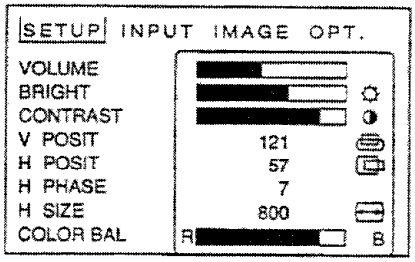


Adjustments and functions (continued)

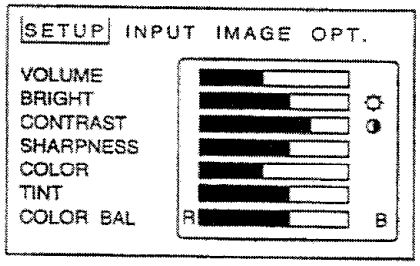
SET UP

The menu SET UP serves for the change of parameters influencing the picture and for the move picture position.

RGB signal input



VIDEO signal input



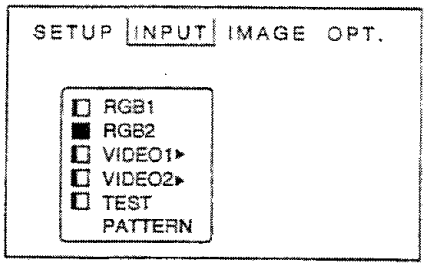
Adjustment Item	Details of adjustment
VOLUME	Decrease ⟷ Increase
BRIGHT (BRIGHTNESS)	Dark ⟷ Bright
CONTRAST	Lower ⟷ Higher
SHARPNESS	Soft ⟷ Sharp
COLOR	Less ⟷ More
TINT	Red ⟷ Green
V.POSIT (V.POSITION)	Moves the picture up or down.
H.POSIT (H.POSITION)	Moves the picture left or right.
H.PHASE	Decreases the picture flicker.
H.SIZE	Widens or Narrows the horizontal size of picture.
COLOR BAL (COLOR BALANCE)	for Red ⟷ for Blue

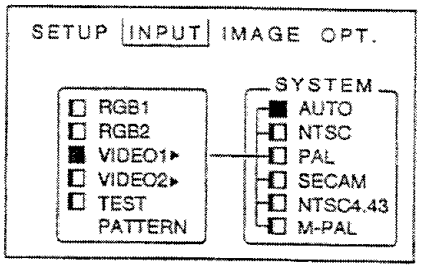
Caution
- Menu items cannot be adjusted, while displaying the start up screen ("NO INPUT IS DETECTED" or "SYNC IS OUT OF RANGE").
- TINT cannot be adjusted with PAL/SECAM/M-PAL video signal input.
- TINT, COLOR and SHARPNESS cannot be adjusted with an RGB signal input.
- V.POSIT, H.POSIT, H.PHASE and H.SIZE cannot be adjusted with a VIDEO signal input.

Adjustments and functions (continued)

INPUT

The menu INPUT serves for the selection of input source.

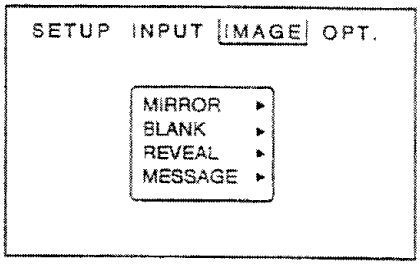


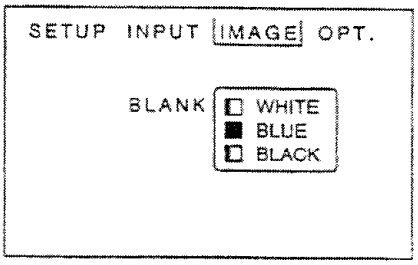


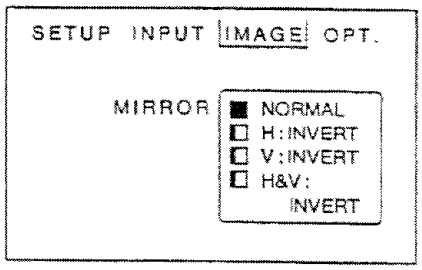
Adjustment Item	Details of adjustment
RGB1	Selects the RGB 1 terminal.
RGB2	Selects the RGB 2 terminal.
VIDEO1	Selects the VIDEO 1 terminal.
VIDEO2	Selects the VIDEO 2 terminal.
TEST PATTERN	Selects the TEST PATTERN. (Start up screen) After selected, wait until MENU goes off.
SYSTEM	Selects the video signal systems. When the picture (Video) is abnormal (no color or out of sync.), selects the input signal mode (NTSC, PAL, SECAM, NTSC4.43 and M-PAL).

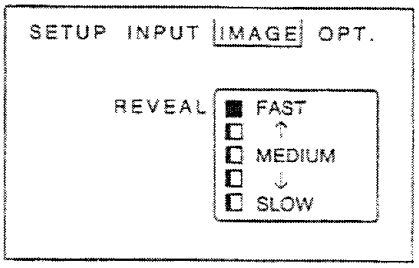
IMAGE

The menu IMAGE serves of the picture inversion.

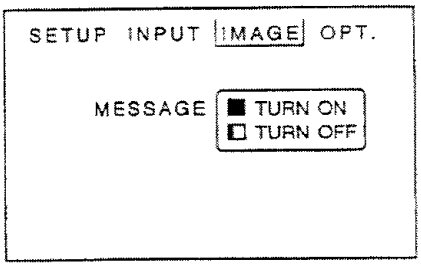








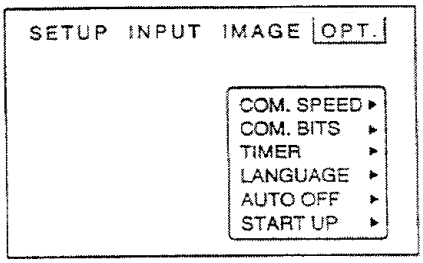
Adjustments and functions (continued)



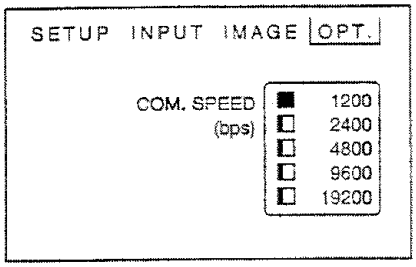
Adjustment Item	Details of adjustment
MIRROR	Inverts the picture horizontally or vertically. NORMAL Not invert. H : INVERT Inverts the picture horizontally. V : INTERT Inverts the picture vertically. H&V : INVERT Inverts the picture horizontally and vertically.
BLANK	Selects the blank color of signal or pressing BLANK ON button.
REVEAL	Selects the speed of revelation. See page 9 "BLANK ON button".
MESSAGE	Turn off the on-screen message. (FOCUS, VOLUME, INPUT mode.)

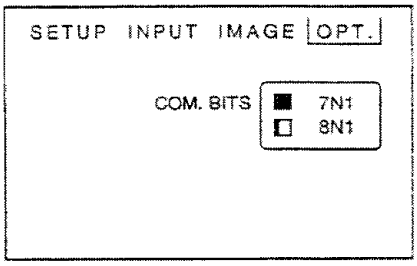
OPT. (OPTION)

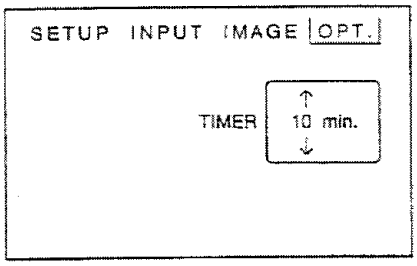
The menu OPT. allows you to control communication function etc.

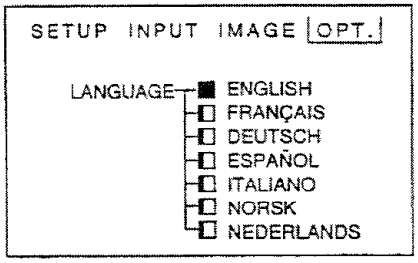


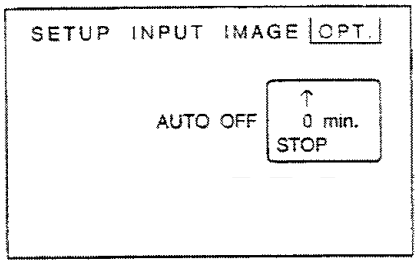
Adjustments and functions (continued)

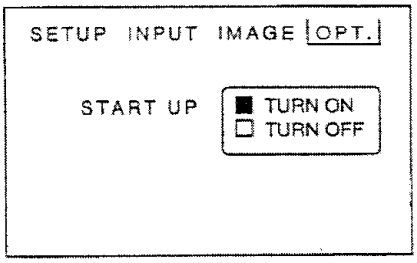












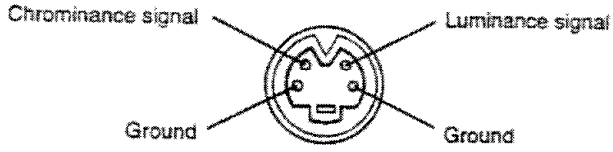
Adjustment Item	Details of adjustment
COM. SPEED (COMMUNICATION SPEED)	Selects the data speed of transmission. (five kinds)
(COMMUNICATION BITS)	8N1... 8 data-bits. No parity, 1 stop bit.
TIMER	Sets the minutes of timer. (0 ~ 99)
LANGUAGE	Selects the language on-screen menu. (English, Francais, Deutsch, Espanol, Italiano, Norsk, Nederlands)
AUTO OFF	Selects the power off timing since input source is off. Set time: 1 ~ 99 (min), 0: not set.
START UP	Turns off the start up screen.

Connection to the video signal terminals

1. Input signal

S-VIDEO signal		Luminance signal 1.0Vp-p, 75 Ω termination Chrominance signal 0.286Vp-p (burst signal), 75 Ω termination
VIDEO signal		1.0Vp-p, 75 Ω termination
AUDIO signal	Input	200mVrms, 20 kΩ below (MAX 3.0Vp-p)
	Output	0-200mVrms, 1k Ω

2. Signal input terminal



S VIDEO input (Mini DIN4 pin)

Caution Video input signal terminals have priority in the following order.
① S-VIDEO input terminal ② RCA jack input terminal
Even when the video signal is displayed, only an audio signal is output to RGB audio output terminals.

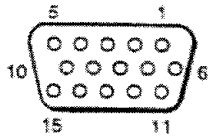
Connection to the RGB signal terminal

1. Input / output signal

Video signal		Analog 0.7Vp-p 75 Ω termination (Positive polarity)
Horizontal sync signal		TTL level (Positive/negative polarity)
Vertical sync signal		TTL level (Positive/negative polarity)
Composite sync signal		TTL level
Audio signal	Input	200mVrms, 20k Ω below (MAX 3.0Vp-p)
	Output	0 - 200mVrms, 1k Ω

2. Signal input / output terminal

1	Video signal (Red)	9	N.C
2	Video signal (Green)	10	Ground
3	Video signal (Blue)	11	N.C
4	N.C	12	DDC (Display Data Channel)
5	N.C	13	Horizontal/Composite sync signal
6	Ground (for R)	14	Vertical sync signal
7	Ground (for G)	15	DDC (Display Data Channel)
8	Ground (for B)		



D-sub 15pin shrink terminal (Female)

Caution Do not use RGB cable other than that specified.
Some RGB cable may not operate DDC (Disply Data Channel) because there are not connect from pin No. ⑮ to pin No.⑫.

Connection to the RGB signal terminal (continued)

3. Example of computer signal

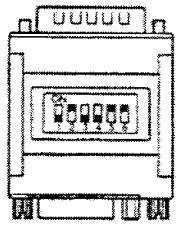
Resolution H × V	fH (kHz)	fV (Hz)	Standard Type	Note 1	Note 2	Note 3	Display Dots H × V
640 × 350	31.5	70.1		VGA-1		Expanded	1024 × 560
640 × 400	24.8	56.4		NEC PC9800		Expanded	1024 × 640
640 × 400	31.5	70.1		VGA-2		Expanded	1024 × 640
640 × 480	43.3	85.0	VESA			Expanded	853 × 640
640 × 480	31.5	59.9	VESA	VGA-3		Expanded	1024 × 768
640 × 480	35.0	66.7		Mac 13" mode	SW 1 ON SW 5 ON SW 6 ON	Expanded	1024 × 768
640 × 480	37.9	72.8	VESA			Expanded	1024 × 768
640 × 480	37.5	75.0	VESA			Expanded	1024 × 768
800 × 600	35.2	56.3	VESA	SVGA (56Hz)		Expanded	1000 × 750
800 × 600	37.9	60.3	VESA	SVGA (60Hz)		Expanded	1000 × 750
800 × 600	48.1	72.2	VESA	SVGA (72Hz)		Expanded	1000 × 750
800 × 600	46.9	75.0	VESA	SVGA (75Hz)		Expanded	1000 × 750
800 × 600	53.7	85.1	VESA	SVGA (85Hz)			800 × 600
832 × 624	49.7	74.5		Mac 16" mode	SW 2 ON SW 5 ON SW 6 ON	Expanded	980 × 735
1024 × 768	48.4	60.0	VESA	XGA (60Hz)			1024 × 768
1024 × 768	56.5	70.1	VESA	XGA (70Hz)			1024 × 768
1024 × 768	60.0	75.0	VESA	XGA (75Hz)			1024 × 768
1152 × 864	67.5	75.0	VESA			Compressed	988 × 741
1280 × 960	60.0	60.0	VESA			Compressed	1024 × 768
1280 × 1024	64.0	60.0	VESA	SXGA (60Hz)		Compressed	960 × 768
1280 × 1024	80.0	75.0	VESA	SXGA (75Hz)		Compressed	960 × 768

Note 1 : Signal mode

Note 2 : MAC adapter is necessary to the resolution mode.
Projector is compatible with 13 inch mode and 16 inch mode.

MAC 13" mode = switch 1, switch 5 and switch 6 are ON.
MAC 16" mode = switch 2, switch 5 and switch 6 are ON.

Note 3 : Display mode



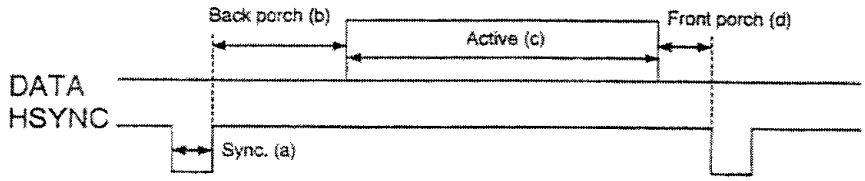
(Example 16inch mode)

Caution • Some input source may not be displayed properly because they are not compatible with the projector.
• Some input source may not be displayed in full size as shown "Display Dots".

Connection to the RGB signal terminal (continued)

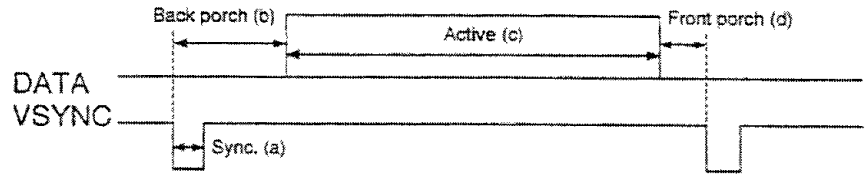
4. Initial set signals

The following signals are initially set. The settings may be different depending on the computer type. In this case, adjust the settings referring to pages 14, 15.



Computer/Signal	Horizontal Timing (µs)			
	a	b	c	d
VGA-1	3.8	1.9	25.4	0.6
PC9800	3.0	3.8	30.4	3.0
VGA-2	3.8	1.9	25.4	0.6
VESA (85Hz)	1.6	2.2	17.8	1.6
VGA-3	3.8	1.9	25.4	0.6
Mac 13 inch mode	2.1	3.2	21.2	2.1
VESA (72Hz)	1.3	4.1	20.3	0.8
VESA (75Hz)	2.0	3.8	20.3	0.5
SVGA (56Hz)	2.0	3.6	22.2	0.7
SVGA (60Hz)	3.2	2.2	20.0	1.0
SVGA (72Hz)	2.4	1.3	16.0	1.1

Computer/Signal	Horizontal Timing (µs)			
	a	b	c	d
SVGA (75Hz)	1.6	3.3	16.3	0.3
SVGA (85Hz)	1.1	2.7	14.2	0.6
Mac 16 inch mode	1.1	3.9	14.5	0.6
XGA VESA (60Hz)	2.1	2.5	15.8	0.4
XGA VESA (70Hz)	1.8	1.9	13.7	0.3
XGA VESA (75Hz)	1.2	2.2	13.0	0.2
VESA (75Hz)	1.2	2.4	10.7	0.6
VESA (60Hz)	1.0	2.9	11.9	0.9
SXGA VESA (60Hz)	1.0	2.3	11.9	0.4
SXGA VESA (75Hz)	1.1	1.8	9.5	0.1



Computer/Signal	Vertical Timing (lines)			
	a	b	c	d
VGA-1	2	59	350	38
PC9800	8	25	400	7
VGA-2	2	34	400	13
VESA (85Hz)	3	25	480	1
VGA-3	2	33	480	10
Mac 13 inch mode	3	39	480	3
VESA (72Hz)	3	28	480	9
VESA (75Hz)	3	16	480	1
SVGA (56Hz)	2	22	600	1
SVGA (60Hz)	4	23	600	1
SVGA (72Hz)	6	23	600	37

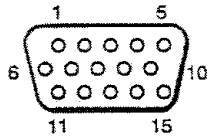
Computer/Signal	Vertical Timing (lines)			
	a	b	c	d
SVGA (75Hz)	3	21	600	1
SVGA (85Hz)	3	27	600	1
Mac 16 inch mode	3	39	624	1
XGA VESA (43Hz)	4	20	768	0
XGA VESA (60Hz)	6	29	768	3
XGA VESA (70Hz)	6	29	768	3
XGA VESA (75Hz)	3	28	768	1
VESA (75Hz)	3	32	864	1
VESA (60Hz)	3	36	960	1
SXGA VESA (60Hz)	3	38	1024	1
SXGA VESA (75Hz)	3	38	1024	1

Connection to the control signal terminal

1. Control signal terminal

Pin No	RS232C	Mouse		
		PS/2	ADB	Serial
1				
2		CLK	DATA	
3		DATA		
4				
5				
6	SELO	SELO		SELO
7	RTS	RTS	RTS	RTS
8				
9		+5V	+5V	
10	GND	GND	GND	GND
11				
12				
13	RDP			
14	TDP			TD
15				

RS232C (option CP-X950E)
Serial mouse (option CP-X950W)



D-sub 15pin shrink terminal (Male)

Caution Turn off the power of both the projector and computer before connecting.
Connect the computer to the control terminal of the projector using an appropriate cable.
Refer to the instruction manual of each device before connecting.

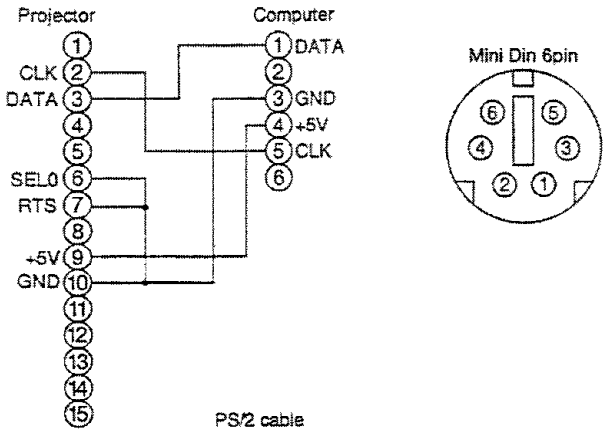
2. Mouse emulation

(1) Connect the projector and the mouse terminal of computer using an appropriate cable, while the projector and the computer are turn off because mouse emulation don't work.
(2) Turn on the projector (The ON indicator will light up orange.).
(3) Press the INPUT of the projector or RGB 1/2 button of the remote control transmitter and select the input connection.
(4) Turn on the computer.
(5) Start mouse emulation mode.
If can not start mouse emulation, reset the computer. (With soft reset or reset switch)
(6) See on the page 9 about to operate the remote control transmitter.
(7) Operation speed of the mouse will vary according to the pressing force on the DISK PAD button.

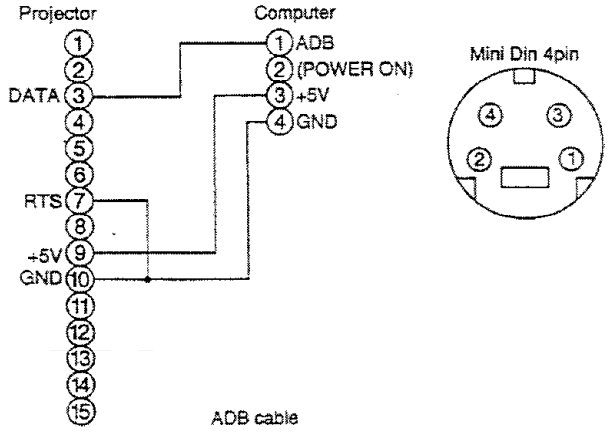
Caution
- In some note computers which have internal pointing device, mouse emulation don't work without setting the internal pointing device disabled. In this case, set the internal pointing device disabled in BIOS setting. After setting in BIOS, operate (1) ~ (5) Please check its hardware manuals to disable internal pointing device in BIOS setting.
- In some computers, mouse emulation don't work without the utility program. In this case, see and check the operating manuals of the computer.

Connection to the control signal terminal (continued)

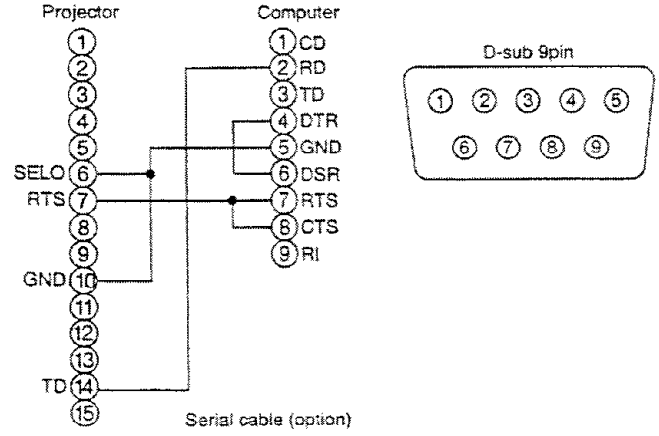
PS/2 mouse



ADB (Mac) mouse



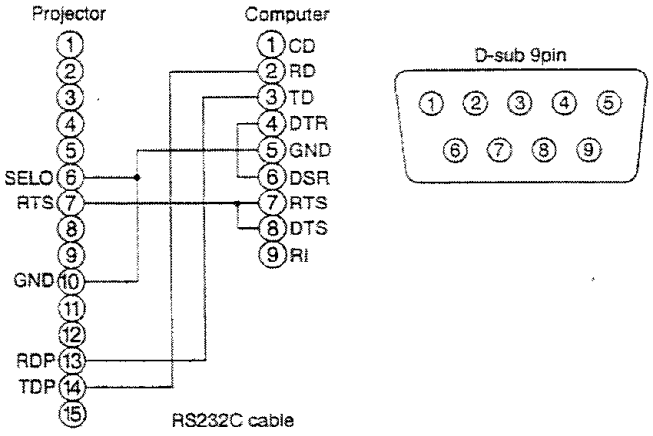
Serial mouse
(option CP-X950W)



Connection to the control signal terminal (continued)

3. Communication

(1) Connect the projector and computer using RS 232C cable.
(2) Turn on the computer and after computer is setting up, turn on the projector.
(3) Select the data speed (COM.SPEED) and the data format (COM.BITS) of the projector. (See page 18)
(4) Start communication.



4. Control command code

Control command table

Item	Projector→Computer			Computer→Projector						
	Reply code			Ask code		Set code			Default code	
	1st	2nd	data	1st	2nd	1st	2nd	data	1st	2nd
MOUSE	11h	05h	+1	20h	05h	31h	05h	+1	40h	05h
COMMUNICATE	11h	06h	+1	20h	06h	31h	06h	+1	40h	06h
POWER	11h	11h	+1	20h	11h	31h	11h	+1	——	
ZOOM	11h	12h	+1	——		31h	12h	+1	——	
FOCUS	11h	13h	+1	——		31h	13h	+1	——	
MIRROR	11h	14h	+1	20h	14h	31h	14h	+1	40h	14h
INPUT	11h	21h	+1	20h	21h	31h	21h	+1	40h	21h
(VIDEO) SYSTEM	12h	22h	+2	20h	22h	32h	22h	+2	40h	22h
VOLUME	11h	23h	+1	20h	23h	31h	23h	+1	40h	23h
MUTE	11h	24h	+1	20h	24h	31h	24h	+1	40h	24h
BRIGHT	13h	31h	+3	20h	31h	33h	31h	+3	40h	31h
CONTRAST	13h	32h	+3	20h	32h	33h	32h	+3	40h	32h
COLOR	13h	33h	+3	20h	33h	33h	33h	+3	40h	33h
TINT	13h	34h	+3	20h	34h	33h	34h	+3	40h	34h
SHARPNESS	13h	35h	+3	20h	35h	33h	35h	+3	40h	35h
H.PHASE	13h	37h	+3	20h	37h	33h	37h	+3	40h	37h
H.POSIT	14h	38h	+4	20h	38h	34h	38h	+4	40h	38h
H.SIZE	14h	36h	+4	20h	36h	34h	36h	+4	40h	36h
V.POSIT	14h	3Ah	+4	20h	3Ah	34h	3Ah	+4	40h	3Ah
BLANK	11h	41h	+1	20h	41h	31h	41h	+1	40h	41h
REVEAL	11h	42h	+1	20h	42h	31h	42h	+1	——	

Connection to the control signal terminal (continued)

Control data table

Item	Data code
MOUSE	00h=stop mouse emulation. 01 ~ 7Fh=start mouse emulation
COMMUNICATE	0Xh=8N1 1Xh=7N1 X0h=1200bps, X1h=2400bps, X2h=4800bps, X3h=9600bps, X4h=19200bps
POWER	1Eh=Power off (Standby mode), 1Fh=Power on
ZOOM	01-3Fh=Zoom +, 41-7Fh=Zoom- 01, 04 (up) ~ 3F, 7F (down)
FOCUS	01-3Fh=Focus +, 41-7Fh=Focus- 01, 04 (short) ~ 3F, 7F (long)
MIRROR	00h=Normal, 01h=H:Invert, 02h=V:Invert, 03h=H & V:Invert
INPUT	11h=VIDEO1, 12h=VIDEO2, 21h=RGB1, 22h=RGB2
VIDEO SYSTEM	00h 00h=Auto, 00h 01h=NTSC, 00h 04h=NTSC4.43 00h 02h=PAL, 00h 03h=SECAM, 00h 05h=M-PAL
VOLUME	00h (min) ~ 7Fh (max)
MUTE	00h=Mute off, 01h=Mute on
BRIGHT	00h 00h 00h (dark) ~ 00h 00h 7Fh (brite)
CONTRAST	00h 00h 00h (lower) ~ 00h 00h 7Fh (higher)
COLOR	00h 00h 20h (less) ~ 00h 00h 60h (more)
TINT	00h 00h 2Eh (red) ~ 00h 00h 52h (green)
SHARPNESS	00h 00h 00h (soft) ~ 00h 00h 64h (sharp)
H.PHASE	00h 00h 00h ~ 00h 00h 1Fh
H.POSIT	00h 00h 52h 00h (left) ~ 00h 00h 54h 04h (right)
H.SIZE	00h 00h 00h 06h (narrow) ~ 00h 00h 48h 0Bh (wide)
V.POSIT	00h 00h 06h 00h (down) ~ 00h 00h 50h 05h (up)
BLANK	0Xh=Blank off 1Xh=Blank on bit0 0=Blue off, 1=Blue on, bit1 0=Green off, 1=Green on bit2 0=Red off, 1=Red on, bit3 0=Not change, 1=Change
REVEAL	X1h=Reveal down, X4h=Reveal right, X=0 (slow) ~ 7 (fast)

(Caution) If computer sends the undefined command code or data code, Projector can not guarantee operation.

Command is consisted of 2 command bytes and following data bytes.
1-st byte indicates the kinds of commands and the length of command.

'0xH' : Error-reply — Projector sends to computer.
'1xH' : Command reply — Projector sends to computer.
'2xH' : Ask command — Computer sends to Projector.
'3xH' : Set command — Computer sends to Projector.
'4xH' : Default set command — Computer sends to Projector.
'5xH' — 'FxH' : Reserved
'x' indicates the length of data bytes.

2-nd byte indicates the command code 'yy' as command table.
Data table shows the data byte.

Connection to the control signal terminal (continued,

The procedure of getting the Projector status.

(1) Computer sends the command '20H' + 'yyH' to Projector.
(2) Projector reply the command '1xH' + 'yyH' + data bytes.

The procedure of setting the Projector status

(1) Computer sends the command '3xH' + 'yyH' + data bytes.
(2) Projector changes it's status.
(3) Projector reply the command '1xH' + 'yyH' + data bytes which indicate status.

> Caution (3) data bytes is not always same as (1) data bytes.
> If projector cannot realize the status of (1) data bytes, projector set the proper status and reply this new setting data bytes or projector reply the error reply '0xH' + 'yyH' + data bytes same as (1).

The procedure of default setting the Projector status

(1) Computer sends the command '40H' + 'yyH'
(2) Projector changes it's status to default setting.
(3) Projector reply the command '1xH' + 'yyH' + data bytes which indicate default.

> Caution If projector replys '4Dh', (before command code, etc.) computer ignores '4Dh'

The example of command error

(1) Computer sends the command '2xH', '3xH' or '4xH' + 'yyH' + data bytes.
(2) Projector doesn't understand (1) code.
(3) Projector reply the command '00H' + 'yyH'

The example of data error

(1) Computer sends the command '2xH', '3xH' or '4xH' + 'yyH' + data bytes.
(2) Projector doesn't understand (1) data bytes.
(3) Projector reply the command '0xH' + 'yyH' + data bytes same as (1)

The example of framing error

(1) Projector detect framing error.
(2) Projector changes to 1200bps 7N1 if it doesn't 1200bps 7N1.
(3) Projector replys '70H' + '70H' 10 times, every 1 second.
(4) When projector receives '70H' + '70H', it replys '12H' + '03H' + '01H' + '00H'.

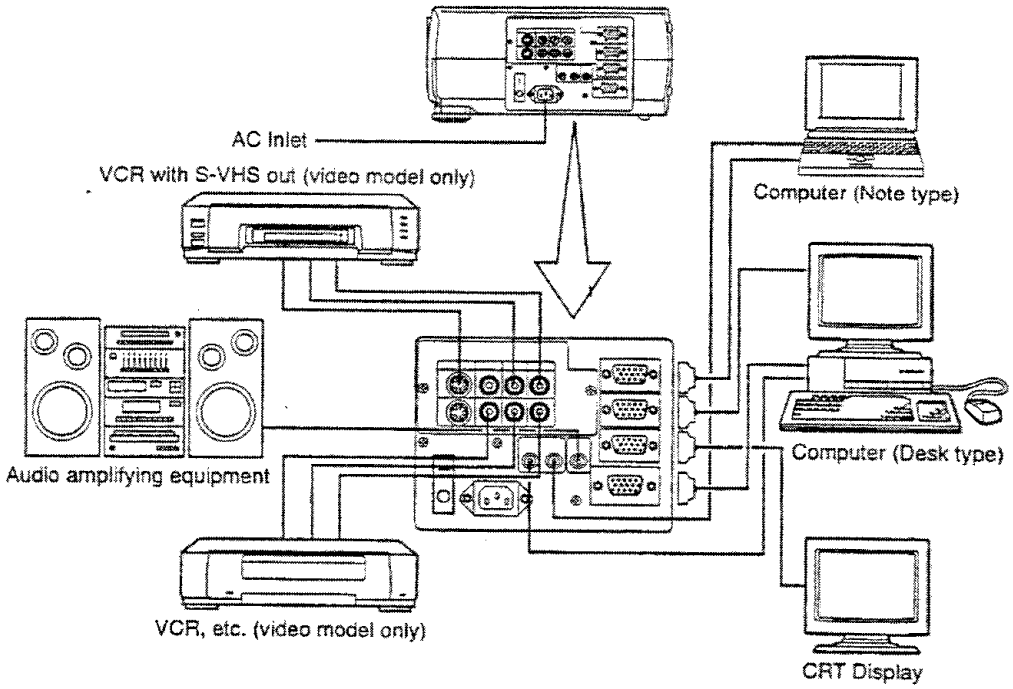
The interval of command bytes and data bytes

(1) The interval of bytes exceeds 500mS.
(2) Projector replys '70H' + '70H'.
(3) Projector wait 1 second for the computer's any command.
(4) If there is no command from the computer, projector treat as framing error.

> Caution • The interval of command bytes and data bytes must be over 1mS and under 500mS. If it is under 1mS, it may be treat as framing error.
> • The interval of Reply code and other codes must be over 40mS.

Example of system setup

Connecting various equipment.



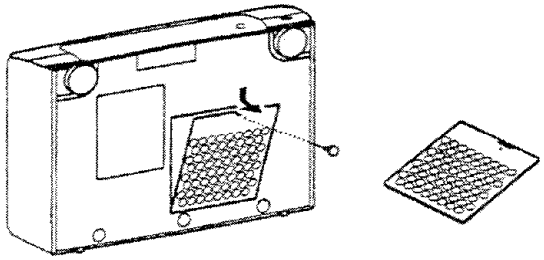
Caution Turn power off to all devices before connecting.
Refer to the instruction manual of each device before connecting.

Cleaning the air filter

Clean the air filter about every 100 hours or when "CHECK THE AIR FLOW" is displayed.

1 Turn off the MAIN POWER switch of the projector and pull out the power cord.

2 Remove the air filter from the bottom.



Cleaning the air filter (continued)

3 Clean the air filter using a vacuum cleaner.

If dirt is still present, wipe the air filter with a cloth moistened with water or neutral detergent and wipe with a dry cloth.

4 Re-install the air filter.

Caution • If air filter is stutted with dust, etc., protection circuit will turn the power off.
• "CHECK THE AIR FLOW" is displayed when you block the ventilation holes.

Lamp

The following symptoms may indicate a worn lamp :

- A dark picture.
- Displayed message "CHANGE THE LAMP".
- LAMP indicator lights up red.

The lamp should be replaced, contact your dealer. (Estimated operating time is approximately 2,000 hours)

Also LAMP indicator will light when the lamp becomes too hot.
Turn off the power and let the projector cool for 20 minutes.
Turn on. If LAMP indicator still lights up red, contact your dealer.

Message table

On screen display

The following messages are displayed on the screen.

MESSAGE	Action
CHANGE THE LAMP "CALL A MAINTENANCE PERSON."	Lamp has 1,900 hours on and it may need to be changed. *1
"CHANGE THE LAMP" "CALL A MAINTENANCE PERSON." "THE POWER WILL TURN OFF AFTER 20 Hr."	Lamp has 1,980 hours on. Call a maintenance person. *1 Time is 20 ~ 0. (count down.)
Blinking of "CHANGE THE LAMP"	When the lamp has 2,000 hours or more on, the message will blink, and the power will turns off after 10 minutes.
NO INPUT IS DETECTED	Signal is not input. (See page 19, 20)
SYNC IS OUT OF RANGE	The horizontal frequency of the input signal exceeds the range of the projector, it cannot be displayed. (See page 20, 21)
CHECK THE AIR FLOW	Clean the air filter or remove the object blocking ventilation holes. (See page 27)

*1 This message is not displayed after 3 minutes.
But this message is displayed when you turn on the power again.

Indicator display

The ON indicator, LAMP indicator and TEMP indicator will light or blink in the following cases.

	Indicator status	Meaning	Remedy
ON indicator	Lights orange	Standby mode	———
	Blinks green	During warming up	———
	Lights green	During operation	———
	Blinks orange	During cooling down	———
	Lights red	Under the mode	Under the method
LAMP indicator	Lights red	Lamp cannot light	Cool projector by power off for 20 minutes.
TEMP indicator	Lights red	Temperature inside too high	Correctly reinstall so as not to block ventilation holes.
	Blinks red	Cooling fan accidented	Call a maintenance person.

When the LAMP indicator lights, turn the power off. If the problem cannot be recovered, contact your dealer.

When you think something wrong

Check the following again before asking for service.
If the trouble cannot be recovered, consult your dealer.

Phenomena	Cause	Check point	Page
Power cannot be turned on.	• The Main power is not turned on.	• Turn the MAIN POWER switch on.	P12
	• The power cord is disconnected.	• insert the power cord into an AC socket.	P8
No picture and sound	• The setting of the input source is not correct.	• Set the correct input using the input select button of the projector or the remote control.	P8, P9 P12, P16
	• Wiring to the projector is not correct.	• Connect the cable correctly.	P8, P27
Only picture is displayed with no sound	• Wiring to the projector is not correct.	• Connect the cable correctly.	P8, P27
	• The volume is set to minimum.	• Press the VOL button or press the MENU button and adjust the volume.	P9
	• The unit enters the mute mode.	• Press the MUTE button.	P8, P9
Only sound is heard without a picture	• Wiring to the projector is not correct.	• Connect the cable correctly.	P8, P27
	• The brightness is set fully to the dark side.	• Press the MENU button and select BRIGHT and press the ⊕ button.	P15
		• Turn the lens cover lever down and lens cover opens.	
Color is weak and tint is incorrect	The color and tint have been adjusted incorrectly.	Adjust the color and tint correctly.	P15
Picture is dark	• The brightness and contrast has been adjusted incorrectly.	• Adjust the brightness and contrast correctly.	P15
	• The lamp has not been adjusted.	• Replace the lamp with a new one.	P28
Picture is not clear	Focus or H.PHASE is not matched.	Adjust the focus or H.PHASE.	P12, P15
LAMP indicator lights red.	Trouble with the lamp.	Turn off the power and leave for 20 minutes ; then turn the power on again.	P29
TEMP indicator lights red.	Inside the projector too hot.	• Do not block the venational holes.	P6, P29
		• Clean the air filter.	
		• Use the projector under 35°C temperature.	

A bright dot may be seen in the picture. This is a phenomenon peculiar to the liquid crystal and is not a problem.

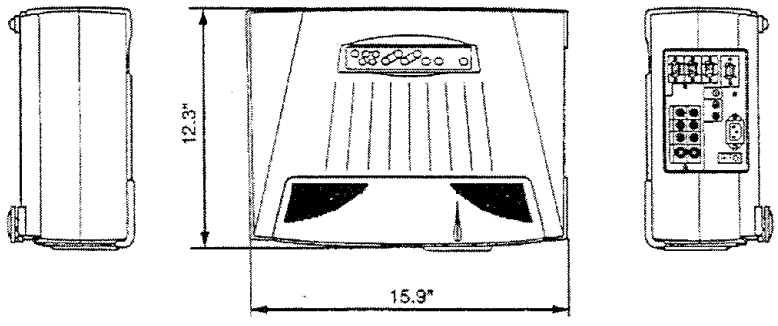
Specifications

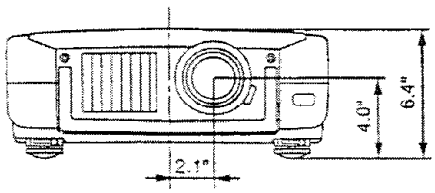
• All specifications are subject to change without notice.

Product name		Liquid crystal projector
Model Name		CP-X950W/E
Display system		3 sheets of liquid crystal panels, 3 primary color lights shutter system
Liquid crystal panel	Panel size	3.3 cm (1.3 inches)
	Drive system	TFT active matrix
	Number of pixels	786,432 pixels (V768 × H1,024)
Lens		Zoom lens F=2.3 – 3.0 f=48.1 – 72.1mm
Lamp		Metal halide lamp 260W
Speaker		2W + 2W (stereo)
Power supply		AC100 – 120V, 5A / AC220 – 240V, 2.2A
Power consumption		370W
Usable temperature range		32 – 95°F
Dimensions (W × H × D)		15.9" × 6.4" × 12.3"
Weight		20.0 lbs.
Input/Output terminal	video signal input terminal	S VIDEO : Mini DIN4-pin terminal VIDEO : RCA Jack terminal AUDIO : RCA Jack terminal
	RGB input/output signal terminal	RGB signal : D-sub 15pin shrink terminal (Female) AUDIO : Stereo mini jack
	Control terminal	D-sub 15pin shrink terminal (Male)
Accessories		Remote control ..... 1 POWER cord ..... 3 (CP-X950W) ..... 2 (CP-X950E) BATTERIES LR6 ..... 2 RGB cable ..... 1 MAC adaptor ..... 1 Video/Audio cable .... 1 (CP-X950W) ..... (option CP-X950E) RS232C cable ..... 1 (CP-X950W) ..... (option CP-X950E) Mouse cable ..... 2 (CP-X950W) 3 (CP-X950E)

Dimension diagram

All dimensions shown in inches.





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